

## Additions and Corrections to Bryan's Check List of the Hawaiian Diptera<sup>1</sup>

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R. C. L. Perkins made the first comprehensive collection of the Hawaiian flies and the dipterous portions of the "Fauna Hawaiiensis" were based largely upon material which he had collected. The "Fauna Hawaiiensis" (Grimshaw, 1901-1902; Speiser, 1902, and Perkins 1910, 1913) recorded one hundred ninety-two species from the Territory. These were arranged in twenty-seven families and apparently represented one hundred thirty-five endemic species and fifty-seven which had been introduced. Since that time the order was not reviewed until Bryan's excellent work (1934 "Proceedings"<sup>2</sup> 8:399-458). Except for the "Fauna Hawaiiensis" this is the most important contribution which has been made to the literature pertaining to the Hawaiian Diptera. It has proved an invaluable aid to the study of our flies. Bryan's check list contained three hundred twenty-nine species and one variety. At least fifteen of these were incorrectly recorded from the islands or are synonyms of other species in our fauna. Some of the others are synonyms of species not previously recognized from Hawaii and many of the names were based upon misidentifications. Bryan recorded forty-two families in his list.

Since Bryan's list, an additional one hundred sixty-two species and one subspecies have been recorded. In addition to these, sixty-plus species have been recorded, by genus only, as new records for the Territory, but at present specific names are not available for these. In view of this increase in the number of species known in our fauna, and the need for correction of so many of the names in our literature, it is desirable that the check list be brought up to date.

Our species are now arranged in forty-one families. Three new families have been added since Bryan's list. Three of his families are not present here and the names are being removed from the list. Two other families are being lumped together, in keeping with the practices of the specialists in the group.

The taxonomy of the Hawaiian Diptera is still in a somewhat preliminary state. We have considerable knowledge concerning some families but others are in a complete state of confusion, and careful revisional studies will be necessary in order to straighten out some of the groups.

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<sup>2</sup> "Proceedings" in this paper refers to the Proceedings of the Hawaiian Entomological Society.

We need much more information concerning the immature stages and biologies of our species. Dr. F. X. Williams made some remarkable contributions in this field; his biological studies of the aquatic flies are unexcelled. We still have very little knowledge concerning the overall phylogeny and evolutionary development of our Diptera fauna. Hawaii is an ideal spot in which to study insular evolution and speciation in various families of flies. This vast field still remains to be explored.

The family names which are used in this paper are the ones which are in most common current usage (especially in the United States) and which are more nearly correct according to a strict interpretation of the Rules of Zoological Nomenclature and the opinions handed down by the International Commission on Zoological Nomenclature. The advice and policies of the specialists at the United States National Museum have been followed in all controversial cases. Unfortunately, some of the names will undoubtedly be changed again. At the present time there is so much confusion with regard to the family names that the controversial issues can never be settled until direct action is taken by the International Commission. The Meigen 1800 names are now used very widely, in accordance with Opinion No. 28 of the Rules of Zoological Nomenclature which states "the generic names contained in Meigen's *Nouvelle Classification*, 1800, must take precedence over those in his *Versuch*, 1803, in every case where the former are found valid under the International Code." Many of the workers of the world have not accepted this decision and have ignored the 1800 names. Curtis W. Sabrosky of the U. S. National Museum has just written to me concerning a paper which he gave at the last International Congress at Amsterdam recommending suppression of the 1800 names. He says, "Although generally a believer in priority, the predominance and persistence of the 1803 names and the hopelessness of changing everyone over to 1800 in any reasonable future time, have led me to believe that the quickest and best chance for uniformity would be to suppress the 1800 paper for good and all before the matter drags out any longer." I heartily agree with Mr. Sabrosky's proposal. It is apparent that such action by the Commission would be the simplest way of achieving stability in our Diptera names. In the meantime, however, we still must contend with the 1800 names.

#### TIPULIDAE

(Change of name for Limoniidae, as used in our literature)

**Erioptera** (Meterioptera) **bicornifer** Alexander, 1921, *Ann. Ent. Soc. Amer.* 14:116.

Eastern Asia. Recorded from Honolulu by Alexander, 1941, "Proceedings" 11:24.

**Limonia** (**Dicranomyia**) **casei** Alexander, 1941, "Proceedings" 11:23.

Known from Oahu and Maui.

**L.** (**Dicranomyia**) **haleakalae** Alexander, 1951, *Ann. Mag. Nat. Hist. ser.* 12, 4 (42):583.

Known only from Maui.

**L. (*Dicranomyia*) *kraussi*** Alexander, 1951, l.c.:583.

Known only from Maui.

**L. (*Dicranomyia*) *wainaensis*** Alexander, 1951, l.c.:586.

Known only from Oahu. The specific name is derived from Waianae and is misspelled. It should be emended to *waianaensis*.

#### CHANGES IN NAMES

Dr. Alexander says that *Trimicra* is now placed as a subgenus of *Erioptera*. The combination of names for our species of this group should be *Erioptera* (*Trimicra*) *pilipes* F.

Dr. Alexander reports that he has in manuscript a number of additional new species of *Limonia* (*Dicranomyia*) from Hawaii. Evidently there are still many undescribed species in our fauna.

#### PSYCHODIDAE

##### ADDITIONS TO BRYAN'S LIST

***Psychoda pseudalternata*** Williams, 1946, "Proceedings" 12:637.

Australia and Oahu (probably general over the Hawaiian Islands). See note below.

***P. phalaenoides*** (L.), 1758, Syst. Nat. ed. 10 (32):588.

Cosmopolitan. First recorded from Hawaii by Wirth (1947, "Proceedings" 13:7) from Oahu.

***P. cinerea*** Banks, 1894, Can. Ent. 26:331.

This is a new record for the islands based upon a series of specimens from a light trap on the University of Hawaii campus, Honolulu, January, 1951 (B. P. Defibaugh). These were determined by Larry Quate, University of Nebraska. The species was described from New York.

***Trichomyia* sp.?**

First reported from Hawaii by Williams (1943, "Proceedings" 11:325) from Oahu.

Mr. Quate has recently submitted a tentative list of the Psychodidae which he studied from our collection. Besides the above mentioned *Psychoda cinerea* Banks and the previously known Hawaiian species, he lists the following:

*Psychoda* sp.? #1, from Oahu.

*P.* sp.? #2, from Oahu.

*P.* sp.? #3 (May be sp. #2 of Williams, 1943, "Proceedings" 11:337, from Oahu).

*P.* sp.? #4, from Oahu.

(Quate says *P. inornata* Grimshaw is probably one of the above numbered species.)

*Trichomyia* sp.? This is apparently the same species reported earlier by Williams. It is common at lights on Oahu.

## NOTES

It is apparent that there are still several unrecorded species in our fauna.

Dr. Williams (1943, "Proceedings" 11:324-325) has studied the biologies of some of our species.

*Psychoda pseudalternata* Williams, 1946, "Proceedings" 12:637.

According to Dr. Alan Stone, U. S. National Museum, *Psychoda pseudalternata* is a Williams species and the specimens he had before him when he figured the species (1943, "Proceedings" 11:336) constituted the type series. He selected a lectotype in 1946 definitely tying the identity of the species to a specimen from Canberra, Australia (in the Bishop Museum).

This species has been accredited to Tonnoir by some workers, although he did not actually describe the species. The name is a *nomen nudum* in our literature as of 1940 ("Proceedings" 10:370) when "Mr. Bryan exhibited specimens of *Psychoda pseudalternata*, a new species being described by Dr. A. L. Tonnoir from Australia." In 1943 ("Proceedings" 11:336), F. X. Williams published the following: "*Psychoda pseudalternata* (unpublished) (figures 35, 36 and 39 and text figure 6)." He gave no description of the species but figured the wing, genitalia, and larva. He used specimens which had been designated as paratypes by Tonnoir. Stone points out that "in accordance with Article 25c of the Code, a species is not valid unless it has a definite diagnosis of characters, which meant a verbal diagnosis, and not figures alone." So the name *pseudalternata* dates from 1946.

## CULICIDAE

## ADDITIONS TO BRYAN'S LIST

*Toxorhynchites brevipalpis* Theobald, 1901, Monog. Cul. 1:245. South Africa.

This species was introduced into Hawaii early in 1950 by the Territorial Board of Health (Bonnet, 1951, "Proceedings" 14:237) as part of the mosquito control program. To date this species has been released only in Manoa Valley, Waiahole, and Pupukea Gulch, Oahu. It has recently been recovered in Manoa Valley near the point of liberation (Bonnet, 1952, "Proceedings" 14:366).

## CHANGES AND NOTES

*Toxorhynchites inornatus* (Walker)

This is a change of combination for *Megarhinus inornatus* Walker. This species was introduced in 1929, from New Britain, but did not become established here.

Dr. Alan Stone (1948, Proc. Ent. Soc. Wash. 50:161) has pointed out that the name *Megarhinus* Robineau-Desvoidy is preoccupied and that the next available name for this group of mosquitoes is *Toxorhynchites* Theobald.

## TENDIPEDIDAE

(Change of name for Chironomidae)

## ADDITIONAL RECORDS

**Clunio brevis** Stone and Wirth, 1947, Proc. Ent. Soc. Wash. 49 (8) :212-214.  
Known only from Oahu.

**C. littoralis** Stone and Wirth, 1947, Proc. Ent. Soc. Wash. 49 (8) :203-206.  
Known from Oahu, Hawaii, and Kauai.

**C. vagans** Stone and Wirth, 1947, Proc. Ent. Soc. Wash. 49 (8) :206-212.  
Known from Oahu, Hawaii, and Kauai.

**Spaniotoma (Smittia) maculiventris** Edwards, 1935, B. P. Bishop Mus. Bull. 114, Pac. Ent. Surv. 7:89. Marquesas Islands.

First recorded in Hawaii by Williams (1944, "Proceedings" 12:164) from Honolulu.

**Telmatogeton fluviatilis** Wirth, 1947, "Proceedings" 13:166-167.

From Oahu. This was Williams' *Telmatogeton* sp. No. 1 (in part) (1944, "Proceedings" 12:168).

**T. hirtus** Wirth, 1947, "Proceedings" 8:158-161.

Known only from Kauai. This was Williams' *Telmatogeton* sp. No. 2, 1944, "Proceedings" 12:169.

**T. japonicus** Tokunaga, 1933, Phil. Jour. Sci. 51:95.

From Japan. First recorded in Hawaii by Wirth (1947, "Proceedings" 13:174) from island of Hawaii.

**T. williamsi** Wirth, 1947, "Proceedings" 13:162-166.

From Oahu. This was Williams' *Telmatogeton* sp. No. 1 (in part) (1944, "Proceedings" 12:168).

**Thalassomyia setosipennis** Wirth, 1947, "Proceedings" 13:121-125.

From Hawaii and Kauai.

**Chironomus** sp.?

A species not recorded before from Hawaii. Williams, 1945, "Proceedings" 12:228. Oahu.

**C.** sp.?

An unrecorded species differing from *C. hawaiiensis* Grimshaw by having dusky wings and thinly plumose antennae. Williams, 1944, "Proceedings" 12:158. Molokai.

**Corynoneura** sp.

Recorded by Wirth, 1947, "Proceedings" 13:21, from Kokee, Kauai.

**Metriocnemus** spp.?

Two undetermined species, Williams, 1944, "Proceedings" 12:165. From Oahu. Wirth (1946, "Proceedings" 12:491) records a *Metriocnemis* which he says is probably the same as Williams' sp. No. 2.

**Pentaneura** sp.

Recorded by Wirth (1947, "Proceedings" 13:8) from Ewa, Oahu.

**Polypedilum** sp.

Recorded by Wirth (1947, "Proceedings" 13:9) from Ewa, Oahu.

**Spaniotoma** spp.

Three undetermined species which were unrecorded in our literature (Williams, 1944, "Proceedings" 12:165) all from Oahu.

**Tanytarsus** spp.

Two species, probably endemic (and undescribed), which have not been recorded in our literature (Wirth, 1946, "Proceedings" 12:491) from Oahu.

**Tendipes** spp.

Two undetermined species apparently new to Hawaii (Wirth, 1946, "Proceedings" 12:491, and Wirth, 1947, "Proceedings" 13:9) from Ewa, Oahu.

## CHANGES AND CORRECTIONS

The genus *Charadromyia* Terry, as recorded in our literature, is a synonym of *Telmatogeton* Schiner (Edwards, 1928, Konowia 7:236).

**Telmatogeton abnormis** (Terry), 1913, "Proceedings" 2:295.

Correction for *Charadromyia abnormis* Terry.

**T. pacificus** Tokunaga, 1935, Mushi 8:15.

This is the species which Williams discussed as *T. pusillum* Edwards, 1944, "Proceedings" 12:166.

**T. torrenticola** (Terry), 1913, "Proceedings" 2:292.

Correction for *Charadromyia torrenticola* Terry.

## HELEIDAE

(Change of name for Ceratopogonidae)

## ADDITIONAL RECORDS

**Dasyhelea calvescens** Macfie, 1938, Proc. Zool. Soc. Lond. ser. B. Tax 7:157-158. From Oahu.

Wirth (1946, "Proceedings" 12:492) reported this species to be abundant on the rocks back of the shore at Hanauma Bay, Oahu, the type locality. Williams (1944, "Proceedings" 12:180) studied the biology of this species.

**D. hawaiiensis** Macfie, 1934, Stylops 3:133-134. From Oahu.

Wirth (l.c.) reported this species to be common throughout Oahu, "from Mt. Kaala to sea level." He also collected it at Hilo, Hawaii. Williams (l.c.:176-178) worked out the biology of this species.

**Forcipomyia ingrami** Carter, 1919, Ann. Trop. Med. and Parasit. 12:290.

Described from West Africa. It also occurs through the southwest Pacific, Malaya, and the West Indies. First recorded from Hawaii by Williams (1936, "Proceedings" 9:111) from Oahu and Hawaii. This species is attracted to lights in great numbers (during December and January) throughout Oahu and perhaps the other islands. Williams (1944, "Proceedings" 12:173-176) worked out the biology of this species.

The four species of Hawaiian Heleidae have been briefly discussed by Wirth (1946, "Proceedings" 12:492).

#### MYCETOPHILIDAE

(Fungivoridae of authors)

No additional records. There are probably several undescribed species in our fauna. To date just three species of *Platyura* have been discovered.

#### SCIARIDAE

(Lycoriidae of some authors)

##### NEW RECORDS

*Sciara* (*Lycoriella*) *garretti* Shaw, 1952, "Proceedings" 14:494.

*S.* (*Lycoriella*) *hardyi* Shaw, 1952, l.c., p. 493.

*S.* (*Lycoriella*) *johannseni* Shaw, 1952, l.c., p. 493.

*S.* (*Lycoriella*) *laffooni* Shaw, 1952, l.c., p. 494.

*S.* (*Lycoriella*) *stonei* Shaw, 1952, l.c., p. 495.

##### NOTES

Refer to paper on Hawaiian Sciaridae by Dr. F. R. Shaw, this issue of "Proceedings," pp. 491-496.

#### SCATOPSIDAE

##### ADDITIONS

*Scatopse fuscipes* Meigen, 1830, Syst. Besch. 6:314. Cosmopolitan.

This species was first recorded in our literature in 1934 by Bryan ("Proceedings" 8:406) as *Rhegmoclema atrata* Say "captured in a parasite cage from California in 1915. It is not known to be established." *Rhegmoclema* has been placed in synonymy with *Scatopse* and *atrata* Say is a synonym of *fuscipes* Meigen. It is also very probably the species reported by Bridwell (1920, "Proceedings" 4:284) as a "Bibionid fly" probably belonging to *Scatopse*. The first definite record of *S. fuscipes* in Hawaii was by Wirth (1947, "Proceedings" 13:7).

*S. fuscipes* is very common on Oahu and probably the other Hawaiian Islands. It has been reported from the island of Hawaii.

#### ITONIDIDAE

(Change of name for Cecidomyiidae)

##### ADDITIONAL RECORDS

*Diarthronomyia chrysanthemi* Ahlberg, 1939, Ent. Tidskrift 60:274, 278.

This is a new name for *D. hypogaea* Felt, nec Loew. Known from the United States and Europe. First recorded in Hawaii by Look (1949, "Proceedings" 13:332 as *Diarthromyia*). It was found damaging the leaves and stems of chrysanthemums grown under glass at Hilo, Hawaii. It occa-

sionally causes severe damage to "mums" grown out of doors on Oahu (Hardy, 1950, "Proceedings" 14:19).

*Parallelodiplosis cattleyae* (Molliard), 1903, Marcellia 1:165 (*Cecidomyia*).

This midge has been intercepted at Honolulu a number of times in galls on the roots of *Cattleya* being imported. It is not known to be established here. See Fullaway, 1938, "Proceedings" 10:48, and Swezey, 1945, "Proceedings" 12:336.

*Dicrodiplosis guatemalensis* Felt, 1938, "Proceedings" 10:43.

This species was introduced into the pineapple fields on Oahu in 1935. It is predaceous on mealybugs. There is no record of its recovery.

#### CHANGES AND NOTES

The taxonomic status of the flower-infesting *Contarinia* in Hawaii has been much confused in the literature. Jensen (1946, "Proceedings" 12: 525-534) presents biological evidence which indicates that "the tomato-infesting midge, which was referred to in the literature as *Contarinia solani* (Rübsaamen) in earlier years and as *C. lycopersici* Felt during recent years, is the same species (*C. maculipennis* Felt) found infesting hibiscus" (and other hosts). His work indicates that both *C. lycopersici* Felt and *maculipennis* Felt are synonyms of *solani* (Rübsaamen). He states, however, that "the West Indies *lycopersici* has been recorded only from tomato while the species in Hawaii is now known to breed in several unrelated plants. This fact makes it inadvisable at present to relegate the name *maculipennis* to synonymy, since the possibility exists that the midge in the West Indies is biologically distinct from the midge in Hawaii despite the apparent absence of consistent morphological differences."

Barnes (1937, B. P. Bishop Mus. Occ. Papers 13 (6):61-66) who had not had the opportunity of examining the blossom midge of Hawaii stated that the occurrence of *C. solani* in Hawaii was probably based upon an erroneous identification "and that the midge in question must be *C. lycopersici* Felt which is closely allied to *C. solani* but is distinct."

Dr. Barnes (Rothamsted Expt. Sta., England), in correspondence, stated "it is highly probable that these two species [*Contarinia lycopersici* Felt and *C. maculipennis* Felt] are synonymous, but I would prefer to list the Hawaiian hibiscus midge, with its wide host plant range, including tomato, as *D. maculipennis* Felt (1933) (? = *lycopersici* Felt, 1911), although I think there is no doubt that they are one and the same species.

"*Contarinia solani* (Rübsaamen) (1891) should not appear in the Hawaiian list as it is a distinct European species. The records of it from Hawaii are due to erroneous identification."

*Contarinia sorghicola* Coquillett is a correction of combination for *Diplosis* (*Contarinia*) *sorghicola* (Coquillett) (Felt, 1908, N. Y. State Mus. Bull. 124:393).



## STRATIOMYIIDAE

## NO ADDITIONAL RECORDS

## CHANGES AND CORRECTIONS

**Cephalochrysa hovas** (Bigot).

Change of combination for *Microchrysa hovas* Bigot. Dr. M. T. James, Washington State College, in correspondence, says he considers *Cephalochrysa* a valid genus; *hovas* is the genotype.

**Evaza javanensis** de Meijere.

Described by de Meijere, not Meigen (as in our literature).

## OMPHRALIDAE

(Change of name for Scenopinidae)

## NO ADDITIONS OF KNOWN SPECIES (SEE NOTES)

## NOTES AND CORRECTIONS

**Omphrale** (*Scenopinus*) **fenestralis** (L.).

Apparently does not occur in Hawaii. No specimens have been found in the collections and this record in our literature is an error.

**Omphrale?** sp. #1 ♀ ♀.

The species recorded in our literature on several occasions as *Scenopinus niger* Meigen (this is an error for *S. niger* Degeer) was very evidently not correctly identified. Grimshaw (1901, Fauna Haw. 3:11) said two female specimens at hand "agree tolerably well with European specimens of this species." I have received European specimens of *niger* from Dr. Willi Hennig (Deutsches Entomologisches Institut, Berlin) and have compared them carefully with specimens from Hawaii. Our species is obviously not *niger* although it does resemble it in some details. *S. niger* is the type of the genus *Archiscenopinus* Enderlein, which is recognized by the widely separated eyes of the males, with all of the ommatidia of equal size, by the swollen, club-shaped hind tibiae of the male and the brownish fumose wings of both sexes. Unfortunately, all of the specimens from Hawaii which I have found in the collections have been females. A series of specimens on hand from Oahu (one in the H.S.P.A. collection from Hawaii) may possibly be *Archiscenopinus*. They conform with *niger* in that they have fumose wings. If it is this genus, however, it represents an undescribed species. Our species differs from *A. niger* in that the wings are more smoky-gray fumose, not distinctly brownish; the small crossvein is situated at the outer two-thirds of the discal cell, not at the middle; the abdomen is scarcely longer than the thorax, not twice as long; the front is nearly four times longer than wide (at middle), not twice as long as wide; etc.

It is highly probable that our species belongs in the genus *Omphrale*, although having fumose wings is a very unusual character in this genus. Our species appears to be related to (possibly identical with) *O. papuana* Kröber from New Guinea and Formosa. Males will have to be found before it can be correctly placed.

**Omphrale?** sp. #2, ♀ ♀.

This is part of the complex which has been treated in our literature under the name *Scenopinus niger* Meigen (error for Degeer). All of the specimens in the collections are females. It is apparently an *Omphrale* but as with the species discussed above, even its generic status cannot be determined with certainty without a male specimen. This species is similar in many ways to species #1 discussed above. It differs as follows: the wings are hyaline, not smoky fumose; the front and middle tibiae are yellowish, tinged with brown, not entirely black; from a dorsal view the occiput protrudes above the eye margin, not completely hidden by the compound eyes as in species #1; the front (measured to the lower ocellus) is one and three-fourths longer than wide, not nearly four times longer than wide. The hind margin of the scutellum is entirely black, not pale. The shape of the head, general body shape, and the wing venation also differ in the two species.

In my "Revision of The North American Omphralidae" (1944, Jour. Kans. Ent. Soc. 17:42) our species will fit *Omphrale nubilipes* (Say). *O. nubilipes* is, however, an unknown species. It was described from Indiana; the type has been lost and to my knowledge the species has not subsequently been correctly identified. It is most unlikely that our species is *nubilipes*.

In Kröber's key to the Indo-Australian species (1937, Stett. Ent. Zeitsch. 98:225) our species fits near *O. opaca* (de Meijere) (from Sumatra) and *O. sinensis* Kröber (from China). Without males it is impossible to be sure of its identity.

This is the most common of our window flies in Hawaii (Oahu). One can usually find several specimens on the windows of our laboratory at the University every afternoon.

**Lucidomphrale lucida** (Becker), 1902, Mitt. Zool. Mus. Berl. 2:39 (*Scenopinus*).

*Scenopinus lucidus* Becker as recorded in our literature should be changed to *Lucidomphrale lucida* (Becker). Bryan (1934, 8[3]:447) was in error when he attributed this species to Kröber. Our species fits the description of *Lucidomphrale lucida* in all details except that Kröber (1937, Stett. Ent. Zeitschr. 98:223) stated that the first two antennal segments (of the female) are about twice as long as wide and somewhat club-shaped, a character which he had not seen in any other species of Omphralidae. In the specimens from Hawaii the first two antennal segments are broader than long and are not at all club-shaped. Specimens were sent to Dr. W. Hennig, Deutsches Entomologisches Institut, Berlin, for comparison with specimens in Becker's collection (Zoological Museum, University of Berlin). Dr. Hennig replied that no specimens of *L. lucida* are present in the collections in Berlin. He said that Becker's type has been completely destroyed by *Anthrenus* and only the minuten nadeln and the labels remain.

A male and a female from Elisabethville, Belgian Congo, have been received for study from Monsieur Basilewsky of the Musée du Congo Belge. Our specimens agree in all details with those from Africa. Unfor-

unately, the antennae are broken off the female specimen so Kröber's antennal character could not be checked.

The females of the species are rather common on windows on Oahu. I have taken but one male specimen on windows. I have found the males hovering just in one spot at Hanauma Bay, Oahu. I have checked several times and have found them only in one local area. Other collectors have taken them in various localities on Oahu.

#### EMPIDIDAE

This is a new family for Hawaii since Bryan's list.

**Chersodromia hawaiiensis** Melander, 1938, "Proceedings" 10:57.

Described from Hanauma Bay, Oahu. This species is associated with crab holes on the beach. It was first reported by Williams (1937, "Proceedings" 9:364) as *Chersodromia* sp.?

**Drapetis insularis** Melander, 1952, "Proceedings" 14:419.

This species has been very recently discovered (November 1951) flying over compost at the University of Hawaii dairy farm by H. A. Bess, D. E. Hardy, and Marian Adachi. The species is very abundant around the dairy farm, flying in association with swarms of *Milichiella lacteipennis*.

#### DOLICHOPODIDAE

##### ADDITIONAL RECORDS

**Asyndetus carcinophilus** Parent, 1937, Bull. et Ann. de la Soc. Ent. de Belg. 77:132-133.

Described from Oahu, associated with crab holes.

**Campsicnemus acuticornis** Parent, 1939, "Proceedings" 10:225.

From Oahu.

**C. bicoloripes** Parent, 1938, Konowia 16:73-75.

From Oahu.

**C. breviciliatus** Parent, 1939, "Proceedings" 10:225-226.

From Oahu.

**C. contortus** Parent, 1938, Konowia 16:75-76.

From Molokai.

**C. deficiens** Parent, 1939, "Proceedings" 10:226.

From Oahu.

**C. depauperatus** Parent, l.c.:226.

From Oahu.

**C. ferrugineus** Parent, 1934, Mem. de la Soc. Nat. des Sci. et Math. de Cherbourg 41:298.

From the island of Hawaii.

**C. flexuosus** Parent, l.c.:226-227.

From Oahu.

**C. fragilis** Parent, l.c.:227.

From Oahu.

- C. fumipennis** Parent, 1938, Konowia 16:76-77.  
From Molokai and Oahu.
- C. furax** Parent, 1939, "Proceedings" 10:228-229.  
From Oahu.
- C. longiciliatus** Parent, l.c.:229.  
From Oahu.
- C. maculus** Parent, l.c.:229-230 (*C. macula*).  
From Oahu.
- C. membranilobus** Parent, l.c.:230.  
From Oahu.
- C. miser** Parent, l.c.:230-231.  
From Oahu.
- C. nigroanalis** Parent, l.c.:231.  
From Oahu.
- C. obscurus** Parent, 1938, Konowia 16:78-79.  
From Molokai.
- C. olympicola** Parent, l.c.:231-232.  
From Oahu.
- C. pallidus** Parent, l.c.: 232.  
From Oahu.
- C. penicillatus** Parent, 1934, Mem. de la Soc. Nat. des Sci. et Math. de Cherbourg 41:300.  
"Sandwich Is."
- C. planitibia** Parent, l.c.:232-233.  
From Oahu.
- C. putillus** Parent, 1938, Konowia 16:80-81.  
From Molokai.
- C. ridiculus** Parent, 1938, Konowia 16:81-82.  
From Molokai.
- C. simplicipes** Parent, 1938, Konowia 16:82-83.  
From Molokai. This is keyed out as a new species in Parent, 1939, "Proceedings" 12:240. This was an oversight.
- C. tarsiciliatus** Parent, l.c.:233.  
From Oahu.
- C. vafellus** Parent, l.c.:233-234.  
From Oahu.
- Chrysotus elegans** Parent, 1938, Konowia 16:68-69.  
From Oahu. This is a synonym of *C. pallidipalpus* Van Duzee (Parent, 1939, "Proceedings" 10:248).
- Cymatopus acrosticalis** Parent, 1938, Konowia 16:69-70.  
From Molokai, Oahu, and Maui.
- Emperoptera haleakalae** Zimmerman, 1938, "Proceedings" 10:146-148.  
From Maui.
- Eurynogaster apicenigra** Parent, 1939, "Proceedings" 10:240-241.  
From Oahu.

- E. binodata** Parent, l.c.:241.  
From Oahu.
- E. cilifemorata** Parent, l.c.:241.  
From Oahu.
- E. luteihalterata** Parent, l.c.:242.  
From Oahu.
- E. maculata** Parent, l.c.:242.  
From Oahu.
- E. minor** (Parent), 1938, Konowia 16 (3-4):213.  
From Oahu. This was described as *Paraliancalus*.
- E. nigrohalterata** Parent, 1939, "Proceedings" 10:243-244.  
From Oahu.
- E. obscurifacies** Parent, l.c.:244.  
From Oahu.
- E. retrociliata** Parent, l.c.:244-246.  
From Oahu.
- E. viridifacies** Parent, 1938, Konowia 16:209-211.  
From Oahu.
- Hydrophorus williamsi** Parent, 1938, Konowia 16:211-212.  
From the island of Hawaii.
- Pachyurus hawaiiensis** Parent, 1934, Mem. de la Soc. Nat. des Sci. et Math. de Cherbourg 41:305.  
From Kauai.
- Sigmatineurum chalybeum** Parent, 1938, Konowia 16:216-218.  
From Molokai.

## CHANGES OF NAMES

**Campsicnemus patellifer** Grimshaw.

Parent (1939, "Proceedings" 10:232) says *C. nudifermoratus* Van Duzee is a synonym of this species.

**Chrysotus pallidipalpus** Van Duzee.

*C. elegans* Parent is a synonym (Parent, 1939, "Proceedings" 10:248).

**Eurynogaster albifacies** (Van Duzee) (1933, "Proceedings" 8:346).

Change of combination for *Sweziella albifacies* Van Duzee. *Sweziella* is a synonym of *Eurynogaster* (Parent, 1939, "Proceedings" 10:249).

**Eurynogaster minor** (Parent) (1938, Konowia 16:213).

Change of combination for *Paraliancalus minor* Parent (Parent, 1939, "Proceedings" 10:243).

**Paraliancalus metallicus** (Grimshaw) (1901, Fauna Haw. 3[1]:13).

Change of combination for *Liancalus metallicus* Grimshaw (Parent, 1938, Konowia 16:214).

**Dolichopus stigmatifer** Parent, 1939, Konowia 16:67.

Synonym of *D. exsul* Aldrich (Parent, 1939, "Proceedings" 10:249).

**Medetera femoralis** Becker.

Listed by Bryan (1931, "Proceedings" 7:401, and 1934, "Proceedings" 8:449, no locality given). The species was not listed by Van Duzee in his

discussion of this genus in Hawaii (1933, "Proceedings" 8:343-345). The species was described from New Guinea and has been recorded from Fiji. It probably does not occur in Hawaii.

## NOTES

The family Dolichopodidae contains the greatest number of (known) species of all the families of Diptera in Hawaii. It is extremely well developed in our endemic fauna and it is obvious that much more work needs to be done on this group. The great majority of our species are known only from Oahu and it is very probable that our list could be doubled or tripled by concerted collecting of these flies on the other islands. To date ninety-two (possibly ninety-three; there is a question as to whether or not *Medetera femoralis* Becker occurs in Hawaii) species have been recorded from Hawaii. Sixty-five of these are known from the island of Oahu, while only four species have been definitely recorded from Kauai, and four or five from Maui. The following shows the known distribution of the species in the various genera.

<b>Asyndetus</b>	1 species, from Oahu.
<b>Campsicnemus</b>	36 species, from Oahu only. 1 species from Oahu and Molokai. 9 species from Hawaii. 6 species from Molokai only. 1 species from Kauai. 1 recorded as "Sandwich Id."
	<hr/> 54
<b>Chrysosoma</b>	1 species, generally distributed. 1 species, from Oahu.
	<hr/> 2
<b>Chrysotus</b>	4 species from Oahu. 1 species from Maui. 1 species from Hawaii.
	<hr/> 6
<b>Cymatopus</b>	1 species from Oahu, Maui, and Molokai.
<b>Dolichopus</b>	1 species, generally distributed.
<b>Emperoptera</b>	1 species from Oahu. 1 species from Maui.
	<hr/> 2
<b>Eurynogaster</b>	13 species from Oahu. 1 species from Hawaii.
	<hr/> 14
<b>Hydrophorus</b>	1 species from Hawaii. 1 species from Oahu, Kauai, and Laysan Island.
	<hr/> 2

Medetera	2 species from Oahu. 1 species from Hawaii. 1? species, distribution not known.
	<hr/> 4
Pachyurus	1 species from Kauai.
Paraliancalus	1 species from Molokai, Maui, and Kauai.
Paraphrosylus	1 species from Oahu, Nihoa, Necker, French Frigate Shoal, Lisiansky and Wake.
Sciapus	1 species probably generally distributed.
Sigmatineurum	1 species from Molokai.
Syntormon	1 species from Oahu and Hawaii.
Total	<hr/> 93

Dr. Williams' biological studies of the Hawaiian Dolichopodidae (1939, "Proceedings" 10:288-315) is an outstanding contribution to the literature.

### PHORIDAE

#### ADDITIONS TO BRYAN'S LIST

*Megaselia biformis* Brues, 1942, "Proceedings" 11:155-156.

Reared from *Achatina fulica* (giant African snail), from Oahu.

As was reported in the minutes of the May 14, 1951 meeting, a number of new records were received in the tentative report submitted by Father Thomaz Borgmeier, Rio de Janeiro, Brazil. They are as follows:

*Diploneura* s. str. sp.? (see below).

From Tantalus, Oahu.

*Megaselia* sp. #1.

From Honolulu, Oahu, "reared from *Thecla echion*," June 1941 (D. D. Jensen), and in house, January 1951 (D. E. Hardy).

*M.* sp. #2.

From Honolulu, Oahu.

*M.* sp. #3.

From Honolulu, Oahu.

*Chonocephalus* sp. #1.

From Waimanalo, Oahu, in bait trap, January 1951 (Paul Gow).

*C.* sp. #2.

From Honolulu, Oahu, December 1950 (D. E. Hardy).

*Puliciphora* sp.

Honolulu, Oahu, November-December 1950 (Edgar Dresner).

In a recent letter, Borgmeier stated that while in Europe, he and Father Schmitz studied our *Diploneura*. "It is *Diploneura* (s. str.) *peregrina* (Wiedemann). [1830, Aussereurop. Zweifl. Ins. 2:600 (*Trineura*). Oriental]." Borgmeier also stated that *Diploneura setitibia* Malloch is a synonym of *peregrina*. The species has been seen from Mt. Tantalus, Oahu (O. H. Swezey), and Tantalus, April 1951 (D. E. Hardy), and Honolulu,

light trap, May 1951 (D. E. Hardy). It is interesting to note that most members of this genus are associated with ants.

#### CHANGES AND CORRECTIONS

##### **Megaselia scalaris** Loew.

Change of combination for *Aphiochaeta scalaris* (Loew). According to Borgmeier (letter), *Aphiochaeta xanthina* Speiser is a synonym of *M. scalaris* Loew. This synonymy has not been previously recorded in our literature.

##### **Megaselia setaria** (Malloch).

Change of combination for *Aphiochaeta setaria* Malloch.

#### MUSCIDORIDAE

(Change of name for Lonchopteridae)

#### NO NEW RECORDS

#### CHANGES AND NOTES

##### **Muscidora furcata** (Fallén), new combination (for Hawaiian literature).

Our species has been referred to in the literature as *Lonchoptera furcata*? It is now quite apparent that the *Muscidora* which has become established here is actually *furcata* (Fallén). I have made careful comparisons of specimens from Hawaii with *furcata* specimens from Europe, and with *dubia* Curran (quite obviously a synonym of *furcata*) specimens from various parts of the United States and have been unable to find differences which could be considered specific. Specimens were sent to Dr. W. W. Wirth, U. S. National Museum, for comparison and he was unable to distinguish any differences in the North American, Hawaiian, and European series. Two specimens were sent to Dr. W. Hennig, Deutsches Entomologisches Institut, Berlin, for comparison. He writes back that he cannot be sure that our material from Hawaii is *furcata*. He said, "Die Posterodorsalborste der T2 [middle tibiae] steht bei dem Tier aus Hawaii ein wenig höher als die obere Anterodorsalborste [it is obvious that he meant to refer to the upper dorsal bristle rather than the upper anterior dorsal bristle], während sie bei allen europäischen Exemplaren in unserer Sammlung in genau gleicher Höhe oder sogar etwas tiefer steht." Unfortunately, this character does not seem to hold for our specimens and I cannot separate them from the European specimens. Specimens were also sent to Dr. Martin Aczel, Fundacion Miguel Lillo, Tucuman, Argentina (Aczel is perhaps the best qualified worker on this group in the world). Aczel has replied that our specimens "belong undoubtedly to the species *Muscidora furcata* (Fallén), which is the only parthenogenetic species known in the Diptera." Aczel's last statement is of particular interest since to date only female specimens have been taken in the Territory. I have seen male specimens of this species from Europe. I have discussed this with Aczel and he has replied that he does not think that *Muscidora furcata* may be bisexual in some areas. He says the males have been taken rarely



in Europe but that they are imperfect and sterile, "representing only a form of atavism for the parthenogenetic species."

#### DORILAIIDAE

(Change of name for Pipunculidae)

#### NO NEW RECORDS

#### NOTES

These interesting parasitic flies have not been studied in Hawaii since Perkins described four additional new species in his supplement to the "Fauna Hawaiensis," 1910. To date twelve species have been described from the Territory under the genus *Pipunculus*. These all belong under the combination *Dorilas* (*Dorilas*). *Pipunculus rotundipennis* Grimshaw has been listed in the genus *Tömösváryella* by Aczel (1948, de Acta Zool. Lilloana 6:29), and from the original description and figure it would certainly appear to be a *Tömösváryella*. E. C. Zimmerman recently studied Grimshaw's type in the British Museum collection, and supplied enough information on the specimen so that we can now be sure it belongs in *Dorilas* (*Dorilas*). I will report on this in more detail when I complete my study of the Hawaiian Dorilaidae.

From my preliminary studies of this family in Hawaii, it is obvious that a number of undescribed species are present in our collections. I hope to have a monographic study of these completed in time for the next "Proceedings."

#### SYRPHIDAE

#### ADDITIONAL RECORDS

**Allograpta exotica** (Wiedemann), 1830, Ausser. Zweifl. Ins. 3:136.

Known from California, Central America, Ecuador, and Uruguay. First reported from Hawaii by Weber (1948, "Proceedings" 13:219) from Molokai and Oahu.

**Eumerus aurifrons** (Wiedemann), 1824, Anal. Entomol. 32:46. Oriental region.

First reported in Hawaii as *Eumerus* sp.? by Swezey (1934, "Proceedings" 8:361) from Oahu. Reported as *E. aurifrons* (Wiedemann), determined by Smart, in 1937 ("Proceedings" 9:366). This species has been recorded only from Oahu and Lanai.

**Melanostoma** sp.?

Manoa Valley, Oahu, December 17, 1950, reared from puparium on celery (O. H. Swezey). This species probably is not established in Hawaii. The celery had been shipped in from California.

**Syritta orientalis** Macquart, 1842, Dipt. Exot. 2:76.

Oriental region. First reported in the Territory by Weber (1949, "Proceedings" 13:332) from Oahu.

**Volucella dracaena** Curran, 1947, Amer. Mus. Nov. 1361:2-3.

Known only from Oahu.

V. *hoya* Curran, 1947, Amer. Mus. Nov. 1361:1-2.

Described from Oahu, and Lower California. Recorded from Kauai by Weber (1952, "Proceedings" 14:358).

*Volucella* sp.? rel. to *hoya* Curran.

Distinguished by the characters given in the key below. One female specimen has been seen to date. Taken on a window, University of Hawaii, Honolulu, September 1951 (D. E. Hardy).

#### CORRECTIONS AND NOTES

*Volucella* (*Ornidia*) *obesa* (F.).

Correct subgenus combination for *Volucella obesa* (F.) (Curran, 1947, Amer. Mus. Nov. 1361:1, and Hull, 1949, Trans. Zool. Soc. 26 (4):348).

*Tubifera* Meigen (1800) has priority over *Eristalis* Latreille (1804). *Eristalis tenax* (L.) as recorded in our literature should be listed under the name *Tubifera*.

*Lathyrophthalmus* is placed as a subgenus of *Eristalis* by Hull (1949, Trans. Zool. Soc. 26[4]:396). The species which are in our literature as *L. aeneus* (Scopoli) and *L. arvorum* (F.) should be treated under the combination *Tubifera* (*Lathyrophthalmus*).

In Curran's paper titled, "New species of *Volucella* from Hawaii and the United States," (1947, Amer. Mus. Nov. 1361:1-6) he presents a key to "the volucelline flies so far known to occur in Hawaii." Unfortunately, he neglected to include our commonest, best known species, *Volucella pusilla* (Macquart). The following revision of Curran's key includes *pusilla* and the above mentioned undetermined species:

1. Face with lateral swellings; large species, 10.5-12 mm. in length; bright metallic green, blue or violaceous in color.....*Volucella* (*Ornidia*) *obesa* (F.)  
Face without lateral swellings; smaller species 6.5-7.5 mm.; not brightly metallic as above ..... 2
2. Wings with three brown, transverse, markings, otherwise hyaline; face with a broad brown lateral stripe on each side and with a brown median stripe; pleura entirely black, except for the bright yellow propleura.....*pusilla* (Macquart)  
Wings evenly yellowish fumose, slightly darker along veins but without brown markings; face with sometimes narrow, pale brownish, lateral stripes and no median stripe; upper half of pleura chiefly yellow..... 3
3. Scutellum with lateral depressions almost as long as wide, femora black on basal third or more..... 4  
Scutellum with weak transverse lateral depressions; femora all reddish.....  
.....*dracaena* Curran
4. Predominantly sub-metallic blue-black species; coxae and femora all black, except for slightly rufous-tinged extreme apices of the latter; humeri black and mesopleura discolored with black on the upper portion; mesonotum entirely blue-black except for yellowish markings on the sides; scutellum all blue-black except for a faint tinge of rufous at the base of the apical depressed area; abdomen blue-black, except for rufous markings in the middle of the first tergum and at the base of the second.....sp.?  
Yellowish species, with brown and ferrugineous markings; coxae yellow, femora yellow on apical halves; humeri and all of upper half of pleura yellow; mesonotum yellow with three brownish to blackish longitudinal vittae; scutellum with a large reddish spot in the middle; abdomen rusty red with black fasciae extending across terga two to four.....*hoya* Curran

*Eumerus marginatus* Grimshaw, although described from Hawaii (1902) is very probably an oriental species. It occasionally causes damage to bulbous plants in the Territory, although it appears to be attracted to bulbs or tubers that are diseased or that have been damaged mechanically. It has been reported infesting the following plants in Hawaii: Cassava roots (*Manihot utilissima* Pohl), lily bulbs and ginger roots.

*Eumerus aurifrons* (Wiedemann) is readily distinguished from *marginatus* by its white hind tarsi.

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Note: The arrangement of the families has been changed from Bryan at this point to treat the Acalyptratae before the Calyptratae.

#### LAUXANIIDAE

(Change of name for Sapromyzidae)

The family name Lauxaniidae has preference over Sapromyzidae on both principles — of the oldest family name (1835 vs. 1840), or of the oldest included genus (1804 vs. 1820).

#### ADDITIONAL RECORDS

*Homoneura unguiculata* (Kertész), 1913, Ann. Mus. Nat. Hung. 11:100 (*Lauxania*).

Described from Formosa. First reported from Hawaii by Hardy (1952, "Proceedings" 14:346). The species had been identified in the Bishop Museum collection by Malloch, but the record was not put into our literature. This is a common species in the Territory. Specimens have been seen (some date back to 1922) from Hawaii, Oahu, and Kauai. This is probably the species referred to by Malloch (1929, Ins. Samoa 6[4]:208) as "a second species of *Homoneura* from Hawaii," but he did not name it.

#### CORRECTIONS

*Homoneura hawaiiensis* (Grimshaw).

Correction for *H. hawaiiensis* Malloch. See note below under family Tetanoceridae.

#### TETANOCERIDAE

(Change of name for Sciomyzidae)

*Sciomyza hawaiiensis* Grimshaw.

This is a *Homoneura* and belongs in the family Lauxaniidae. There are apparently no Tetanoceridae in the Hawaiian fauna (Hardy, 1950, "Proceedings" 14:73).

#### SPHAEROCERIDAE

(Change of name for Borboridae, see note below)

#### ADDITIONAL RECORDS

*Copromyza* (*Copromyza*) *equina* Fallén, 1820, Heteromyzides, 6.

Nearly cosmopolitan. First reported in Hawaii by Wirth (1947, "Proceedings" 13:22). A series of specimens, identified as *C. equina* by Dr.

O. W. Richards, was collected at Lake Waiau, Maunakea, Hawaii, elev. 13,007 ft., October 1951 (Edgar Dresner). This is an unusual distribution record for the species.

**Limosina (Paracollinella) abdominiseta** (Duda), 1925, Arch. Naturg. 90A, Heft 11 (1924):52 (*Leptocera*).

A new record for Hawaii, determined by Dr. Richards. See Richards, this issue of "Proceedings," p. 430, for distribution records.

**L. (Limosina) brevicostata** Duda var. **rufifrons** (Duda), 1925, *loc. cit.*: 188.

New record for Hawaii, determined by Dr. Richards, Honolulu, April 1951 (D. E. Hardy).

**L. (Collinellula) downesi** (Richards), 1944, Proc. Roy. Ent. Soc. Lond. 13A:167.

New record for Hawaii, determined by Dr. Richards. See Richards, p. 430.

**L. (Coproica) hirtula** Rondani, 1880, Bull. Soc. Ent. Ital. 12:24 and 40.

New record for Hawaii, determined by Dr. Richards. See Richards, p. 431.

**L. (Limosina) puerula** Rondani, 1880, *loc. cit.*:23 and 36.

New record for Hawaii, determined by Dr. Richards. See Richards, p. 429.

The new records of *Limosina* are all from the island of Oahu.

#### NOTES AND CORRECTIONS

Dr. O. W. Richards, Imperial College, London, has kindly brought the list of the Hawaiian Sphaeroceridae up to date. Of the four species listed by Bryan, *Limosina aequalis* Grimshaw is the only one which was correctly named. Ten species are now known from the Territory.

**Copromyza (Borborillus) sordida** Zetterstedt, 1847, Dipt. Scand. (Lund), 6:2484 (= *Borborus bilineatus* [Grimshaw]).

New synonymy reported by Dr. Richards, p. 429.

**Limosina (Coproica) ferruginata** (Stenhammar), 1854, Copromyzinae Scandinaviae, p. 397 (*Leptocera*).

A correction of combination of *Leptocera ferruginata* according to Dr. Richards.

**Limosina (Poecilomella) punctipennis** (Wiedemann), 1830.

This is a correction of *L. venalicia* Osten Sacken, of Grimshaw, 1901. See Richards, p. 430.

**Limosina (Opacifrons) aequalis** Grimshaw.

This is the correct subgenus combination for this species. See Richards, p. 430.

Sphaeroceridae is apparently the oldest family name for this group (Macquart, 1835). This name is the most widely used in the present day literature and is preferred by the leading workers on the family. Hendel (1922) and others have used Cypselidae based upon the earlier Meigen name, *Cypselia* (1800); *Borborus* Meigen (1803) is apparently synonymous with *Cypselia*. Dr. Richards does not approve of the use of the Meigen 1800 names and reports that there is so much confusion with regard to the name *Borborus* Meigen that he feels *Sphaerocera* Latreille (1804) (and Sphaeroceridae) is the best name to use.

#### TETHINIDAE

***Tethina albula*** (Loew), 1869, Berl. Ent. Ztschr. 13:44 (*Rhinoessa*), North America.

First recorded by Wirth (1947, "Proceedings" 13:21) from Oahu. This species is common on the beaches.

***T. sp.*?**

A small pale colored, brownish yellow to rufous, species. Taken on the beach at Waimanalo, Oahu, September 1951 (Adachi and Hardy).

#### NOTES

***T. insularis*** Aldrich.

Recorded by Bryan from Pearl and Hermes Reef. This species is now very common on the beaches of Oahu, and probably is on the other Hawaiian Islands. *Tethina insularis* is distinguished from *T. albula* (Loew) by the narrow cheeks (half the width of the third antennal segment), all black bristles and dark gray color. *T. albula* has very broad cheeks (much wider than the third antennal segment), yellowish bristles and is silvery gray pollinose.

In a recent letter, Sabrosky said that four species (possibly three) of *Tethina* were in a collection which I had sent to him. Some of these may be undescribed. The *Tethina sp.*? recorded above was probably represented in this collection.

#### OTITIDAE

##### NO ADDITIONAL RECORDS

##### CORRECTIONS

***Physiphora aenea*** F.

Change of combination for *Chrysomyza aenea* (F.). Fallén (1817, Scenopinii p. 3) proposed *Chrysomyza* to replace *Physiphora*, which he considered to be preoccupied, by *Physsophora* Förskål. Since *Physiphora* was not actually preoccupied it has been reinstated (Hennig, 1941, Ent. Beiheft 8:117, and Steyskal, B. P. Bishop Mus. Occ. Pap., in press).

*Pseudeuxesta prima* Osten Sacken, 1881, Mus. Stor. Nat. Geneva Ann. 16:470.

Change of name for *Euxesta semifasciata* Malloch. Synonymy recorded by Hendel (1931, Verh. Zool. Bot. Ges. Wien 81:4) and Malloch (1932, B. P. Bishop Mus. Bull. 98:208-209).

#### NOTES

The family name for this group of flies is still very controversial. No official decision has been made by the International Commission for Zoological Nomenclature regarding the correct name. As was pointed out by Aldrich (1932, Proc. U. S. Nat. Mus. 81[Art. 9]:7) *Ortalis* Fallén (1810) is preoccupied by *Ortalis* Merrem (1786) so the name Ortalidae is not available for use in the Diptera. Aldrich proposed the new family name Otitidae, based on *Otites* Latreille (1804). As was pointed out by Sabrosky (1946, Proc. Ent. Soc. Wash. 48[7]:168) Aldrich did not base his new family name upon the generic name which replaced *Ortalis*, but changed the type genus. This was an unfortunate procedure since it presents the possibility of changing the family concept.

Sabrosky further points out that *Ortalis* of authors is apparently equal to *Ceroxys* Macquart and "the subfamily Ortalinae of authors must . . . be known as Ceroxydinae." Following this concept, George Steyskal, Grosse Ile, Michigan, has proposed the family name Ceroxydidae (see Sabrosky, l.c.:168) to replace Ortalidae and Otitidae. Steyskal's name has, however, not been accepted and Otitidae is the name which is in general use throughout the world.

The genus *Scholastes* has been treated in some of our literature under the family name Platystomatidae, following Brues and Melander, Hennig, *et al.* Based upon the opinions of Sabrosky and Steyskal, it is perhaps best that we consider this group as a subfamily under Otitidae.

#### TEPHRITIDAE

(Change of name for Trypetidae)

*Dacus (Strumeta) dorsalis* Hendel, 1912, Suppl. Ent. 1:18. Formosa, India, Malaya, Thailand, French Indo China, Dutch East Indies, Burma, Philippine Islands, Ryukyu Islands, and Marianas.

First recorded from Oahu by Fullaway (1947, "Proceedings" 13:8) in May, 1946. It was probably brought in from Saipan by returning troops as early as the late summer of 1944. It is abundant on all of the islands and is the most serious pest of fruits in the Territory.

*Procecidiochaes utilis* Stone, 1947, "Proceedings" 13:97-98.

"Reared from stem galls on *Eupatorium adenophorum*" (syn. of *E. glandulosum*) from Mexico and Oahu. This species was imported from Mexico in an attempt to effect biological control of pamakani (*Eupatorium glandulosum*). It is common on Oahu, Maui, Lanai, and Molokai (the latter two are new island records from observations made by Dr. H. A. Bess).

## NOTES AND CHANGES

**Dacus (Strumeta) cucurbitae** Coquillett.

This is the correct combination for *Chaetodacus cucurbitae* (Coquillett).

**Tephritis sens. str. spp.**

There has been considerable controversy concerning the status of our native *Tephritis* (see Bryan, 1924, "Proceedings" 5:367). Our species possess characters intermediate between two genera. Bezzi (in correspondence to Bryan) considered it best to retain our species in *Tephritis* although he admitted that "they are very like *Trypanea* in having a star-shaped terminal spot, which is, however, combined with a net-like pattern continued to the base of the wing." He said, "these species seem to form a group peculiar to the Islands, only the unknown *limpidapex* being a more typical *Tephritis*." Aldrich (by letter to Bryan) referred the species *crassipes*, *cratericola* and *dubautiae* to *Trypanea*. Bryan preferred to keep these in *Tephritis* and proposed a new subgenus, *Trypanoidea* (l.c.) to contain these species. Malloch (1931, Rec. Cant. Mus. 3:389, and 1933, Dipt. Patag. So. Chile 6(4):275) says that it is not practical to separate *Tephritis* and *Trypanea* on the basis of wing patterns and unless we are prepared to erect several new genera we must sink *Tephritis* as a synonym, or at most subgenus, of *Trypanea* (*Urellia*). Much work remains to be done before the true position of our species can be understood.

**Rhagoletis sp.?**

Larvae of a *Rhagoletis* were recovered at Honolulu in a box of cherries shipped in from Seattle (Krauss, 1941, "Proceedings" 11:15). This is not established in the Territory.

**PIOPHILIDAE**

NO ADDITIONAL RECORDS

**CHYROMYIDAE**

(In our literature as Chironomyidae)

The original spelling of the type genus by Robineau-Desvoidy was *Chyromya* and there have since been numerous emendations and misspellings.

## ADDITIONS AND CORRECTIONS

**Chyromya spp.?**

One species has been recorded in our literature as "*Chironomyia* (*Scyphella*) *flava* (L.)." Most of the species of *Chyromya* are uniformly pale yellow, and various species throughout the world have been commonly misidentified as *flava*. It is now obvious that *C. flava* does not occur in Hawaii. Our species (possibly two) runs to *C. concolor* Malloch, in Malloch's key to the species of this genus (1914, Proc. Ent. Soc. Wash. 16: 179-181). Dr. M. R. Wheeler (University of Texas) compared some of

our specimens with *C. concolor* taken in Texas and stated that our species is evidently different. Curtis W. Sabrosky (U. S. National Museum) says it looks as though there are two species of *Chyromya* in Hawaii and neither is *flava* or *concolor*.

Specimens of *Chyromya* are common on windows in Honolulu during the winter months.

#### *Aphaniosoma* sp.?

Probably new, related to *A. thoracalis* Hendel (from Formosa) but not fitting the original description. This species has been taken by sweeping *Scaevola* on the beaches on the windward side of Oahu. The presence of this genus in Hawaii was first reported by Hardy (1952, "Proceedings" 14:355).

### CANACEIDAE

#### ADDITIONAL RECORDS

*Placopsidella cynocephala* Kertész, 1901, Termes. Fuzet. 24:425. New Guinea, Solomon Is., and Java.

First reported in Hawaii by Adachi (1952, "Proceedings" 14:354) from Oahu.

*Procanace williamsi* Wirth, 1951, Bishop Mus. Occ. Pap. 20 (14) :257-258. Described from Oahu.

#### CHANGES

*Canaceoides nudata* (Cresson).

Change of combination for *Canace nudata* Cresson (1934, Trans. Amer. Ent. Soc. 9:221). This is the genotype of *Canaceoides* Cresson.

### EPHYDRIDAE

#### ADDITIONAL RECORDS

*Apulvillus mauiensis* Wirth, 1948, "Proceedings" 13:300. From Maui.

*A. williamsi* Wirth, l.c.:299. From the island of Hawaii.

*Atissa oahuensis* Cresson, 1948, Trans. Amer. Ent. Soc. 74:24. Described from Oahu.

*Ceropsilopa coquilletti* Cresson, 1922, Ent. News 33:136.

Nearctic and Neotropical species. First recorded by Adachi, determined by Wirth (1952, "Proceedings" 14:354) Oahu.

*Chaetoscatella* sp.? (probably endemic).

Recorded by Wirth (1947, "Proceedings" 13:22) from Oahu.

*Clasiopella uncinata* Hendel, 1914, Suppl. Ent. 3:110.

Formosa and Pacific islands. In the U. S. National Museum and H.S.P.A. collections from Guam and Midway ("very common on planes"). First recorded in Hawaii by Adachi, determined by Wirth (1952, "Proceedings" 14:353) from Oahu.



**Discocerina mera** Cresson, 1939, *Notulae Nat.* 21:6.

Formosa and Pacific islands. First recorded in Hawaii by Adachi, determined by Wirth (1952, "Proceedings" 14:353) from Oahu.

**Ephydra gracilis** Packard, 1872, *Amer. Jour. Arts and Sci.*, 3rd ser., 1:103.

From western America. First recorded in Hawaii by Wirth (1947, "Proceedings" 13:141) from Oahu. This species breeds in the salt water pools in the Pearl Harbor area.

**Ephydra riparia** Fallén, 1813, *K. Vetensk. Akad. Handl.*, p. 246. Holarctic.

New record (determined by Wirth) from Ala Wai Canal, Waikiki, Oahu, April 16, 1950 (Marian Adachi).

**Gymnopa grandis** Cresson, 1925, *Trans. Amer. Ent. Soc.* 51:232.

From Formosa. First reported by Adachi, determined by Wirth (1952, "Proceedings" 14:353) from Oahu. This has been taken along the beaches on *Scaevola*.

**G. tibialis** (Cresson), 1916, *Ent. News* 27:149.

North America, Canada and Central America. First reported in Hawaii by Adachi, determined by Wirth (1952, "Proceedings" 14:353) from Molokai.

**Hostis guamensis** Cresson, 1945, *Trans. Amer. Ent. Soc.* 71:64-65.

From Guam. First recorded from Hawaii by Adachi, determined by Wirth (1952, "Proceedings" 14:353) from Oahu. Found along the beaches.

**Hydrellia hawaiiensis** Cresson, 1936, *Trans. Ent. Soc. Amer.* 62:263-264.  
Described from Oahu.

**H. williamsi** Cresson, 1936, *Trans. Ent. Soc. Amer.* 62:259-261.

First reported by Williams (1937, "Proceedings" 9:359) as a dipterous leaf miner in *Lemna* plants from Kukuiala Valley, Oahu. He said it had been taken previously on Molokai.

**Lytogaster grandid** (Loew), 1863, *Berl. Ent. Zeits.* 4:98 (*Hyadina*).

Alaska and United States. New record for Hawaii based upon specimens from Pauahi, Hawaii, August 12, 1949 (D. E. Hardy), determined by Wirth.

**L. aldrichi**? Cresson, *nomen nudum*? (see notes).

Referred to by Williams, 1938, "Proceedings" 10:87.

**Mosillus** sp.?

Reported by Krauss (1945, "Proceedings" 12:222). From Kauai.

**Neoscatella cilipes** Wirth, 1948, "Proceedings" 13:288.

From Oahu and Kauai.

**N. clavipes** Wirth, l.c.:289-290.

From the island of Hawaii.

**N. clavipes tenda** Wirth, l.c.:290.

From Oahu.

**N. fimbriata** Wirth, l.c.:286-288.

From Oahu.

**N. kauaiensis** Wirth, l.c.:282-284.

From Kauai.

**N. oahuensis** (Williams), 1938, "Proceedings" 10:107 (*Scatella*).

From Oahu. The change of combination was made by Wirth (1948, "Proceedings" 13:295).

**Polytrichophora** n. sp.

In the U. S. National Museum collection, "from Hawaii." Will be described by Wirth. This is a new record for this genus in the Territory.

**Psilopa girschneri** von Roeder, 1889, Ent. Nachr. p. 55.

Described from Europe. Cresson has recorded this species from various localities in western America and Alaska, but Wirth (correspondence) says that Cresson later put this in *P. olga* Cresson and *dimidiata* Cresson; the latter is a synonym of *olga*. Wirth reports having specimens of this species in the U. S. National Museum, "from Hawaii." This is a new record for the Territory.

Genus (prob. new) between *Limnellia* and *Scatella* sp.?

Determined by Wirth. One specimen from Pauahi, Hawaii, August 12, 1949 (D. E. Hardy). Wirth gave the following notes on this species: "wing pattern strongly resembling that of *Limnellia* spp., but head bristles of a specimen in U. S. National Museum from Volcano, Hawaii, as in *Scatella* and abdomen not shining."

#### CORRECTIONS AND NOTES

**Discomyza maculipennis** (Wiedemann).

Erroneously accredited to Cresson by Bryan.

**Notophila insularis** Grimshaw.

Correct combination for *Paralimna insularis* (Grimshaw) (according to Wirth, in correspondence).

**Hecamede persimilis** Hendel.

Correct name for our Hawaiian *Hecamede*. *H. femoralis* Malloch, as recorded by Wirth (1947, "Proceedings" 13:21) is a synonym (*vide* Cresson, 1948, Trans. Amer. Ent. Soc. 74:23) and the use of *H. albicans* (Meigen) in our literature has been based upon misidentifications; true *albicans* is a European species.

**Neoscatella bryani** (Cresson).

Change of combination for *Scatella bryani* Cresson (Cresson, 1935, Trans. Amer. Ent. Soc. 61:360).

**N. hawaiiensis** (Grimshaw).

Change for *S. hawaiiensis* Grimshaw (Cresson, l.c.).

**N. sexnotata** (Cresson).

Change for *S. sexnotata* Cresson (Cresson, l.c.).

**N. terryi** (Cresson).

Change for *S. terryi* Cresson (Cresson, l.c.).

**N. warreni** (Cresson).

Change for *S. warreni* Cresson (Cresson, l.c.).

**Lytogaster willistoni** Cresson, 1916, Ent. News 27:150.

California. This is a synonym of *L. gravida* (Loew) according to Cresson (1949, Trans. Amer. Ent. Soc. 74:256). *L. willistoni* was recorded from Oahu by Williams (1937, "Proceedings" 10:6).

Wirth (correspondence) has reported that he can find no record of a *Lytogaster aldrichi* Cresson, as reported in our literature (Williams, 1938, "Proceedings" 10:87). He said that this may have been a manuscript name of Cresson's.

#### DIASTATIDAE

This family does not occur in Hawaii. According to Sabrosky *Pseudias-tata* belongs in the family Drosophilidae. See note below.

#### DROSOPHILIDAE

##### ADDITIONAL RECORDS

**Bunostoma** n. sp.? related to *flavifacies* Malloch.

Determined by Wheeler. This is the first record of this genus occurring in Hawaii. Just two specimens have been seen to date: one from Honolulu, Oahu, February 21, 1951 (R. van den Bosch), and one from Waimanalo, Oahu, January 22, 1951 (D. E. Hardy).

**Bunostoma** sp. #2.

A second, unrecorded species of this genus is on hand from the following localities on Oahu: Haleauau Valley, Mt. Kaala, April 21, 1949 (G. B. Mainland); Manoa Valley, June 1950 (D. E. Hardy); and Honolulu, September 1951 (D. E. Hardy).

**Chymomyza procnemis** (Williston), 1896, Trans. Ent. Soc. Lond. p. 412.

Nearctic and Neotropical regions. First recorded in Hawaii by Zimmerman (1938, "Proceedings" 10:131) from Oahu.

**Dettopsomyia formosa** Lamb, 1914, Trans. Linn. Soc. Lond. 16 (4):349.

Seychelles Islands. First recorded in Hawaii by Malloch (1938, "Proceedings" 10:54) from Oahu. This species is one of the most beautiful as well as the smallest (length 1.5 mm.) of the Drosophilidae. Because of its small size, however, it is easily overlooked.

**Drosophila ananassae** Doleschall, 1858, Nat. Tijds. Neder. Ind. 17:128.

Cosmopolitan. First recorded in Hawaii by Zimmerman (1943, "Proceedings" 11:347) from Oahu.

**D. busckii** Coquillett, 1901, Ent. News 12:16.

United States. First recorded in Hawaii by Davis (1947, "Proceedings" 13:14) (determined by Mainland) from Kilauea, Hawaii. This species is also common on Oahu.

**D. deltaneuron** Bryan, 1938, "Proceedings" 10:40-41.

Described from Oahu.

**D. hydei** Sturtevant, 1921, Carn. Inst. Wash. Pub. 301:101.

United States. First recorded in Hawaii by Zimmerman (1943, "Proceedings" 11:346) from Oahu.

**D. immigrans** Sturtevant, 1921, Carn. Inst. Wash. Pub. 301:83.

Cosmopolitan. First reported in Hawaii by Mainland (1949, "Proceedings" 13:327) from Oahu.

**D. lulumahu** Bryan, 1938, "Proceedings" 10:39-40.

Described from Oahu.

**D. mercatorum** Patterson and Wheeler, 1942, Univ. of Texas Pub. 4213:93.

United States. First recorded in Hawaii by Zimmerman (1943, "Proceedings" 11:346) from Oahu.

**D. montium** de Meijere, 1916, Tijds. voor Ent. 59:205.

Orient and Pacific. First recorded in Hawaii by Zimmerman (1943, "Proceedings" 11:347) from Oahu.

**D. polychaeta?** Patterson and Wheeler, 1942, Univ. of Texas Pub. 4213:102.

United States. New record for Hawaii based upon specimens collected in banana trap at the University of Hawaii, March 1948 (G. B. Mainland). This is the species which Dr. Mainland listed, *nomen nudum*, as *D. pattersoni* n. sp. in "Drosophila Information Service" 22:59 (1948). It was listed by Patterson and Wheeler (1949, Univ. of Texas Pub. 4920:229) as "*D. pattersoni*, Manuscript name."

I was unable to distinguish this from *D. polychaeta* and sent the series (five specimens) to Dr. Wheeler. He said "on the basis of present information, your specimens are certainly *polychaeta*, or a closely related form. If we could get hold of a living stock or a larger series, we should be able to examine the male genitalia, etc., and come to a more precise decision. At the moment, I strongly suspect that it is really '*polychaeta*'."

**D. repleta** Wollaston, 1858, Ann. Mag. Nat. Hist. 41:117.

Madeira. First recorded in Hawaii by Mainland (1949, "Proceedings" 13:327) from Oahu.

**D. sadleria** Bryan, 1938, "Proceedings" 10:41-42.

Described from Oahu.

**D. simulans** Sturtevant, 1919, Psyche 26:153.

Cosmopolitan. First recorded in Hawaii by Zimmerman (1943, "Proceedings" 11:347) from Oahu.

**D. spinofemora** Patterson and Wheeler, 1942, Univ. of Texas Pub. 4213:103.

Described from Hawaii but obviously an immigrant species. Very probably common on all of the islands, especially in guava thickets.

**D. spp. near melanosoma** Grimshaw, near *carinata* Grimshaw, near *paucipuncta* Grimshaw and near *cognata* Grimshaw.

Recorded from Lulumahu Canyon, Oahu, by Williams, 1938, "Proceedings" 10:121.

**D. sp.?**

Two specimens are at hand from Poamoho, Oahu, Nov. 19, 1948 (D. E. Hardy) which evidently represent an unrecorded (possibly undescribed) species. I had considered this species to belong to the *polychaeta* group but Dr. Wheeler after studying the specimens concluded that our species is not related to *polychaeta*, "in fact are [specimens] not especially close to anything we know of." This may possibly be a native species but it is unusual to find endemic forms in areas such as Poamoho.

**Scaptomyza graminum** (Fallén), 1823, Dipt. Suec. Geomyz. 8 (*Drosophila*).

Palearctic and Nearctic regions. First reported in Hawaii by Hardy (1952, "Proceedings" 14:346) from Oahu. It has also been seen from Kauai. Nothing is known about the habits of this leaf-mining species in Hawaii.

**Tantalia albobittata** Malloch, 1938, "Proceedings" 10:53-54.

Described as a new genus and species from Oahu. This is a tiny, inconspicuous species (length, 1.5 mm.).

**Titanochaeta bryani** Wirth, 1952, "Proceedings" 14:417.

Ex spider egg sacks from Manoa Valley, Oahu.

**T. swezeyi** Wirth, 1952, "Proceedings" 14:415.

Ex spider egg sacks from Maui.

## NOTES AND CORRECTIONS

**Titanochaeta ichneumon** Knab.

This is now known from the islands of Hawaii and Oahu. The larvae of this genus are predaceous upon spider eggs.

**Pseudiastata pseudococcivora** Sabrosky, 1951, Bull. Ent. Res. 41:624-625.

Sabrosky says, "This is undoubtedly the species which was introduced (as *P. nebulosa*) into Hawaii on several occasions between 1924 and 1932 for the control of the pineapple mealybug (Fullaway, 1933)." I have sent specimens of this to Sabrosky and he has confirmed that our species is *P. pseudococcivora*. The genus *Pseudiastata* was placed in the family Geomyzidae by Coquillett and was referred to the Drosophilidae by Melander (1913, Psyche 20:166-169). It is listed in our literature under the family Diastatidae.

It is apparent that the *Pseudiastata* introduced into Hawaii has not become established; it has never been recovered here.

**Drosophila mulleri** Sturtevant.

Has been recorded in our literature but the records were evidently based upon misidentifications of *D. hydei* Sturtevant (*vide* Zimmerman, 1943, "Proceedings" 11:346).

This is the second largest family of flies in Hawaii, according to the known number of species. We have a very rich endemic fauna, especially of *Drosophila*. To date, eighty species have been recorded for the family. These are enumerated below by genera. *Pseudiastata* is not included since this is not established in Hawaii.

<b>Bunostoma</b>	2 species (probably immigrants)
<b>Chymomyza</b>	1 species (immigrant)
<b>Dettopsomyia</b>	1 species (immigrant)
<b>Drosophila</b>	62 species (11 immigrant, 51 endemic)
<b>Gitona</b>	1 species (immigrant)
<b>Hypenomyia</b>	1 species (endemic)
<b>Idiomyia</b>	7 species (endemic)
<b>Scaptomyza</b>	1 species (immigrant)
<b>Tantalia</b>	1 species (endemic)
<b>Titanochaeta</b>	3 species (endemic?)
	<hr/> 80

It is apparent that there are many undescribed species of *Drosophila* in the Islands. A tremendous amount of work remains to be done on this group. Some workers have estimated that there must be two hundred to three hundred species of Drosophilidae in Hawaii.

#### ASTEIIDAE

##### ADDITIONAL RECORDS

*Asteia nudiseta* Sabrosky, 1947, "Proceedings" 13:55-56.  
Described from Oahu.

##### NOTES

The genus *Stenomicro* occupies a very questionable position. It is an aberrant group whose true family position is much disputed. It resembles some Opomyzidae. Sabrosky agrees with Malloch (1927, Ann. and Mag. Nat. Hist. ser. 9, 20:23-26) that it is near the drosophilid-asteiid complex. Malloch thought it best to consider it as an asteiid.

*Stenomicro angustata* Coquillett.

This has been recorded with a query in our literature. Specimens in the H.S.P.A. collection labelled as *S. angustata* were determined by Sabrosky as *S. orientalis* Malloch. *S. angustata* Coquillett is a very distinctive species characterized from other known species of the genus by having the second section of the costa (the section between the apices of the 1st and 2nd longitudinal veins) not much longer than the third costal section. No specimens fitting this character have been found in any of the Hawaiian collections.

#### CHLOROPIDAE

##### ADDITIONAL RECORDS

*Chlorops sens. lat. sp.?*

Determined by Sabrosky. First recorded by Hardy (1952, "Proceedings" 14:408) from Oahu.

**Conioscinella** sp.

Determined by Sabrosky. First reported by Wirth (1947, "Proceedings" 13:21). Locality not given; probably from Oahu.

**Oscinella** sp.?

Determined by Sabrosky, from Oahu (probably Honolulu; the specimens have not been returned). This has not previously been recorded in our literature.

**Gaurax** (*sens. lat.*) **bicoloripes** Malloch.

Determined by Sabrosky. First reported from Hawaii by Hardy (1952, "Proceedings" 14:408) from Oahu. Sabrosky has indicated that at the present time it is not possible to put this species into its correct generic combination. See my notes, p. 409.

## CHANGES AND NOTES

**Cadrema pallida** (Loew).

Has been in our literature as *Prohippелates pallidus*, and earlier as *Hippelates nigricornis* Thomson. The correction was recorded by Wirth (1947, "Proceedings" 13:22).

**Rhodesiella**.

Has been in our literature under the family Carnidae, but this genus belongs under Chloropidae, according to Sabrosky.

**R. scutellata** (de Meijere).

Not Meigen, as recorded by Wirth (1947, "Proceedings" 13:22). This species has been in our literature as *R. tarsalis* Adams. This was corrected by Wirth (l.c.: 13:22). Sabrosky, in correspondence, has pointed out that *tarsalis* is a distinct African species and the records of this species occurring in Hawaii were based upon misidentifications.

## CARNIDAE

This family does not occur in Hawaii. The genus *Rhodesiella*, in our literature under Carnidae, belongs under Chloropidae.

## LONCHAEIDAE

(New family record)

**Lamprolonchaea aurea** (Macquart), 1850, Dipt. Exot. Suppl. 4:300.

Widespread throughout the Pacific. This is the first record of this family occurring in Hawaii. Specimens have been seen from both the windward and leeward sides of Oahu (Hardy, 1952, "Proceedings" 14:363, 408).

This species is easily distinguished from other members of the genus by its greenish color and convergent third and fourth veins in the wings. The rugose frons is also characteristic; only one other species, *L. rugosifrons* Bezzi, from Australia, possesses this character.

## MILICHIIDAE

## ADDITIONAL RECORDS

**Desmometopa palpalis** de Meijere, 1914, Tijdschr. Ent. 57:251. From Java.

New record for this species. It is common on Oahu. It breeds in abundance in manure and compost. See notes below under *D. tarsalis*.

**Desmometopa** sp.?

A large series of specimens are on hand which differ from the other two species of this genus known from Hawaii. These have been collected largely on windows on the University of Hawaii campus, March to September, 1951 (D. E. Hardy, M. Adachi).

The species differs from the other Hawaiian *Desmometopa* by being subshining black, with the sternopleura polished and with a polished black line extending beneath each eye. The mid and hind tarsi are conspicuously yellow (especially the metatarsi) and the wing veins, including the costa, are pale in color, yellowish to whitish.

**Milichiella** sp.? related to *circularis* Aldrich.

This species has not been previously recorded in our literature. A series of specimens was taken hovering behind the U.S.D.A. Dole Street laboratory in Honolulu, September-October, 1951 (J. W. Beardsley); it has also been taken on window, Honolulu, November 1951 (D. E. Hardy).

## CORRECTIONS AND NOTES

**Desmometopa tarsalis** Loew, 1865, Dipt. Amer. Sept. Ind. 6:96.

This is the correct name for *D. m-nigrum* as used in the Hawaiian literature. I have studied all of the available specimens of Hawaiian *Desmometopa*, and find none which fits the concept of *m-nigrum* (see Malloch, 1934, Ins. Samoa 6[8]:327).

Material which Aldrich misidentified as *D. m-nigrum* and later as *D. tarsalis* (1929, "Proceedings" 7:233) appears to be *palpalis* de Meijere (*sensu* Malloch, 1934, l.c.).

## CHAMAEMYIIDAE

(Change of name for Ochthiphilidae)

## NO NEW RECORDS

According to Sabrosky "Ochthiphilidae is the oldest family name but *Ochthiphila* equals *Chaemyia* and the family name has been changed to Chamaemyiidae in accordance with that."

## ANTHOMYZIDAE

(New family record)

**Ischnomyia** n. sp.?

Determined by Sabrosky, based upon specimens from various localities on Oahu. This is no doubt the same species as has been recorded by Wirth (1947, "Proceedings" 13:21) as *Mumetopia* sp.? determined by Greene from Oahu and Hawaii. He recorded this under the family Opo-



myzidae. Sabrosky has stated, in correspondence, "The '? *Mumetopia*' seems to me nearest *Ischnomyia*, but I cannot place it except as a probable new species."

### AGROMYZIDAE

#### ADDITIONAL RECORDS AND CORRECTIONS

***Liriomyza canomarginis*** Frick, 1952, "Proceedings" 14:511.

Described from Oahu, ex *Indigofera*.

***L. hawaiiensis*** Frick, 1952, l.c.:513.

Described from Oahu, Lanai, Maui and Hawaii; ex tomato, *Cleome*, cabbage, *Nasturtium* and daikon.

***L. minutiseta*** Frick, 1952, l.c.:512.

From Oahu, ex tomato, cauliflower, squash and eggplant.

***L. pullata*** Frick, 1952, l.c.:509.

From Oahu and Molokai, ex *Datura*, *Lipochaeta* sp. and aster.

The above species of *Liriomyza* have previously been confused in our literature under the name *L. pusilla* (Meigen). This complex is being studied by Kenneth E. Frick, Washington State College.

***Melanagromyza simplex*** (Loew), 1869, Dipt. Amer. Sept. Indig., Berl. Ent. Zeitsch. 8:84.

North America, a miner in asparagus. Change of name (Frick, in correspondence) for *Agromyza simplex* Loew. This species was first recorded from Hawaii by Swezey and Bianchi (1938, "Proceedings" 10:11) as a pest of asparagus on Oahu.

***Melanagromyza* sp.?**

Determined by Frick. Reported in our literature as *Agromyza simplex* Loew, by Hardy, (1951, "Proceedings" 14:227) from specimens reared from celery at Kamuela, Hawaii. Frick later studied specimens of this series and reported that *M. simplex* is restricted to asparagus. He says the totally black species of this genus are difficult to separate and he is unable to place our species from celery.

It is interesting to note that an agromyzid has recently been reported damaging celery in Australia (1950, Agr. Gaz. 61[9]:473). This species has recently been described as *Melanagromyza apii* Hering, 1951, Ann. and Mag. Nat. Hist., ser. 12, 4:736-745.

***M. spp.*?**

Determined by Frick, partly recorded by Mitchell (1951, "Proceedings" 14:224), reared from leaves of African marigold, lettuce and celery, and from stems of *Gnaphalium*, sunflower and *Zinnia*, from Oahu.

***Napomyza* sp.?**

Reported by Wirth (1947, "Proceedings" 8:21) from Oahu.

***Dizygomyza (Calycomyza) humeralis*** (von Roser), 1840, Würtemb. Landwirts. ver. Korresp., N.S. 8, Nachtrag dazu I, Heft 1:49-64 (*Calycomyza*), Holarctic.

Determined by Frick. First reported from Hawaii by Wirth (1947, "Proceedings" 13:21) under the name *Calycomyza artemisiae* (Kaltenbach),

determined by Greene. It was also reported by Mitchell (1950, "Proceedings" 14:224) under the name *Agromyza* (*sens. lat.*) sp. (*jucunda* van der Wulp of authors), determined by Sabrosky. It has been reared only from China aster, and collected in light traps on Oahu.

**D. (*Calycomyza*) *jucunda*** (van der Wulp), 1867, Tijdschr. v. Ent. 10:161.

United States. Determined by Frick from specimens taken on Oahu, by sweeping.

**Phytoliriomyza perpusilla** (Meigen), 1830, Syst. Beschreib. der bekannt. Europ. Zweifl. Insekten 6:181. Holarctic.

New record for the Territory based upon specimens, determined by Frick, taken by sweeping, from Honolulu.

**Pseudonapomyza spicata** (Malloch).

Change of name for *Phytomyza spicata* Malloch (1914, Ann. Mus. Nat. Hung. 12:334) (Frick, in correspondence). This was described from Formosa. First recorded in Hawaii by Van Zwaluwenburg (1947, "Proceedings" 13:30), reared from grasses on Oahu. Present also on Molokai, Maui and Hawaii.

#### NOTES

The literature dealing with Hawaiian agromyzids has been greatly confused. Most of our records have been based upon misidentifications and of the previously recorded species only the name *Ophiomyia lantanae* (Froggatt) is valid.

Our *Liriomyza* have been commonly recorded as *L. pusilla* (Meigen). It is now apparent, according to Frick, that *L. pusilla* does not occur in Hawaii and that a complex of species has been going under this name.

#### OESTRIDAE

##### NO ADDITIONAL RECORDS

##### CORRECTIONS

**Hamaxia incongrua** Walker.

Placed in this family by Townsend (1936, Manual of Myiology 3:93). See note on this species in the next family.

#### LARVAEVORIDAE

(Change of name for Tachinidae)

(Including Townsend's Dexiidae, Exoristidae and Gymnosomatidae)

##### ADDITIONAL RECORDS

**Eucelatoria armigera** (Coquillett), 1889, Insect Life 1(11):331-332 (*Tachina*).

California, Florida, Puerto Rico, and Mexico. First recorded from Hawaii by Pemberton (1943, "Proceedings" 11:265) from Oahu. This fly parasitizes a wide variety of caterpillars and is now known from Oahu, Molokai, Hawaii, Maui, and Kauai.

## CORRECTIONS AND NOTES

**Achaetoneura archippivora** (Williston).

Change of combination for *Frontina archippivora* (Williston), described under *Masicera* (Weber, 1930, Proc. U. S. Nat. Mus. 78[10]:20-24).

This change of combination was brought to my attention by Paul Arnaud, Redwood City, California. He further pointed out that Townsend (1941, Manual of Myiology 11:226) stated that *Masicera archippivora* Williston belongs in his genus *Ypophaemyiops* (genotype: *Prophryno myersi* Aldrich, from British Guiana). If Townsend's synonymy is correct, we will have to use *Ypophaemyiops*. Sabrosky (correspondence) commented on this point as follows: "Townsend's genus seems to me too fine a split."

**Chaetogaedia monticola** Bigot.

Townsend (1936, Manual of Myiology 4:178) says, "What has been called *Chaetogaedia monticola*, is not Bigot's *monticola* which has the female third antennal joint only a little longer than the second, but is probably *vilis* Wp. or an allied species."

**Hamaxia incongrua** Walker.

Correct name for *Ochremeigenia ormioides* Townsend. (Townsend, 1936, Manual of Myiology 4:279.) Townsend (*op. cit.*, 3:93) places *Hamaxia* in the family Oestridae. This fly is not established in Hawaii, in spite of repeated introductions. The synonymy is by Townsend who examined Walker's types of *H. incongrua* in London (U.S.D.A. Tech. Bull. 366, p. 8, 1933).

**Paradionaea atra** (Townsend).

*Leucostoma atra* Townsend is the genotype of *Paradionaea* (Townsend, 1936, Manual of Myiology 3:80).

## SARCOPHAGIDAE

## ADDITIONAL RECORDS

**Amobia (Pachyophthalmus) sp.?**

Possibly new, determined by Sabrosky. First reported by Swezey (1951, "Proceedings" 14:221), reared from nest of *Eumenes latreillei petiolaris* (Schulz), Honolulu (see under notes for further discussion on this fly).

This has since been taken by Van Zwaluwenburg, Rosa, Mitchell, and Hardy in *Eumenes* nests at Waipio, Oahu, and several locations around Honolulu. The same collectors have found puparia, apparently of this fly, in the nests of *Sceliphron caementarium* (Drury).

**Goniophyto bryani** Souza Lopes, 1938, Bishop Mus. Occ. Pap. 14 (11):195. From the "N. W. Hawaiian Islands."

**Helicobia morionella** (Aldrich), 1930, Proc. U. S. Nat. Mus. 78:31 (*Sarcophaga*).

West Indies and California. This is a correction of name for the species recorded in our literature as *Helicobia heliciis* (Townsend) by Williams (1937, "Proceedings" 9:362), associated with *Eulota similis* on Oahu.

*H. helcis* is considered to be a synonym of *H. rapax* (Walker) (see Aldrich, 1930, Proc. U. S. Nat. Mus. 78[12]:15). This species apparently does not occur in Hawaii. Specimens which Williams had collected, determined as *H. helcis* by Smart, have been identified as *H. morionella* by H. R. Dodge.

This species has been recorded from several localities on Oahu and Kauai. It can be collected in large numbers by using dead snails as bait.

***Sarcophaga albiceps*** Meigen, 1826, Syst. Besch. 5:22.

Europe and India. First recorded in Hawaii by Lopes (1941, "Proceedings" 11:56) from Oahu.

***S. knabi*** Parker, 1917, Proc. U. S. Nat. Mus. 54:96.

Philippine Islands, Guam, etc. First recorded by Tanada, *et al.* (1950, Jour. Econ. Ent. 43:31, reared from poultry manure at Honolulu). This species is rather common on Oahu.

***S. orientaloidea*** Senior-White, 1924, Rec. Ind. Mus. 26:244.

India and Ceylon. First recorded in Hawaii by Lopes (1941, "Proceedings" 11:56) from Honolulu. This species is common on Oahu.

***S. ruficornis*** (F.), 1794, Ent. Syst. 4:314-316 (*Musca*).

The Orient and N. E. Africa. First reported in Hawaii by Joyce (1949, "Proceedings" 13:338) from Oahu and Kauai.

#### CORRECTIONS AND NOTES

***Hystricocnema plinthopyga*** (Wiedemann).

Change of combination for *Sarcophaga plinthopyga* Wiedemann (*vide* Lopes, 1941, "Proceedings" 11:54).

***Probellieria argyrostoma*** (Robineau-Desvoidy).

Change of name and combination for *Sarcophaga barbata* Thomson (Dodge, in correspondence). The synonymy of *S. barbata* with *S. argyrostoma* was pointed out by Seguy (1941, Mouches Parasites 2:77).

***Sarcophaga peregrina*** (Robineau-Desvoidy).

Change of name for *S. fuscicauda* Boettcher. Synonymy pointed out by Lopes (1941, "Proceedings" 11:55).

***Ravinia lherminieri*** (Robineau-Desvoidy).

Change of name and combination for *Sarcophaga pallinervis* Thomson (*vide* Lopes, 1941, "Proceedings" 11:54).

Mr. Sabrosky has reported (in correspondence) that "David G. Hall is working on a paper now which will describe a couple of new species and will list several new records of *Sarcophaga* from Hawaii."

The new *Amobia* presents a number of interesting biological problems. The species very obviously came into Hawaii in the mud nests of the *Eumenes* from New Guinea or that general region of the Pacific. The wasp was first collected in September, 1946 (Townes, 1947, "Proceedings" 13:105). It arrived during the war, probably on equipment coming back from the southwest Pacific.

In Hawaii the *Eumenes* provisions its nests only with the larvae of *Anacamptodes fragilaria* (Grossbeck). This geometrid moth migrated

here from California about the same time as the wasp, or shortly before. It was first collected in August 1944 (Pemberton, 1946, "Proceedings" 12:466).

Weber and Maehler (1948, "Proceedings" 13:206) found many nests of *Eumenes latreillei petiolaris* on the steamship "Furman Victory," from Manus and other South Pacific islands, "on the rudder, propellers and cradles of two motorboats carried as deck cargo. In one nest were found several empty dipterous puparia, evidently of two species." This gives an excellent lead as to the origin of the *Amobia*.

Townsend (1935, Manual of Myiology 2:201-202) gives the following information concerning the habits of the Miltogrammini (the tribe to which *Amobia* belongs): "The flies larviposit on the stored food supply in nests of burrowing wasps, bees and mud daubers or drop their maggots in the burrows while hovering in the air. The maggots feed externally on the grubs of the nest makers and on or even inside the comatose or decomposing insects with which the nests have been stored. . . . The maggots of the forms that breed in mud dauber nests pupate within the mud cells, the flies escaping through the thin partition walls between the cells until they find a host exit through the heavy outer wall."

## CALLIPHORIDAE

### ADDITIONAL RECORDS

**Calliphora vicina** (Robineau-Desvoidy), 1830, Myodaires, p. 435.

Cosmopolitan. First reported in Hawaii by Joyce (1950, "Proceedings" 14:5) from Honolulu.

**Orthellia caesarion** (Meigen), 1826, Syst. Besch. 5:57.

Europe (cosmopolitan?). This has apparently been reported only from Niihau, by Fullaway, determined by Williams (1947, "Proceedings" 13:53). This was reported under the combination *Cryptolucilia caesarion* (Meigen).

**Prostethochaeta** near *lucilioides* Grimshaw.

Recorded from Lulumalu Canyon, Oahu, by Williams, 1938, "Proceedings" 10:122.

### CORRECTIONS

**Eucalliphora lilaea** (Walker), 1849, List Dipt. Ins. Brit. Mus. 2:894 (*Musca*).

Change of name and combination for *Calliphora latifrons* Hough (*vide* Hall, 1948, "Blowflies of North Amer." Thomas Say Foundation, p. 284).

**Phaenicia sericata** (Meigen), 1826, Syst. Besch. 5:53 (*Musca*).

Change of name and combination for *Lucilia sericata* (Meigen). (*vide* Hall, 1948, "Blowflies of North Amer." Thomas Say Foundation, p. 259).

**Rhinia testacea** Robineau-Desvoidy, 1830, Myodaires, 423.

This is the correct name for the species which has been referred to in the Hawaiian literature as *Stomorphina pleuralis* (Thomson). *R. testacea* was first recorded in our literature by Grimshaw (1902, Fauna Haw.

3:83). It was also mentioned by Perkins (1913, Intro. to Fauna Haw. 1:187) who said that the species first appeared in Hawaii in 1900 and "at once became very common." Since that time the name has not been used in our literature except for Illingworth's questioning of the identity of the species (1923, "Proceedings" 5:268). Apparently all records of *Stomorphina pleuralis* occurring in Hawaii should pertain to *R. testacea*. The former species was described from Keeling Is., near Sumatra and was recorded from Hawaii by Howard (1901, Proc. Ent. Soc. Wash. 4[4]:490) based upon specimens collected by H. W. Henshaw and determined by Coquillett. Sabrosky reports that specimens in the U. S. National Museum (from Hawaii) determined as *Stomorphina pleuralis*, by Coquillett and Bryan, are *Rhinia testacea*. I have checked all of the available specimens of this group in the Hawaiian collections and have found no *Stomorphina*.

#### GASTROPHILIDAE

##### NO ADDITIONAL RECORDS

#### MUSCIDAE

(Including the Anthomyiidae of Bryan, *et al.* as a subfamily of Muscidae)

##### ADDITIONAL RECORDS

**Atherigona hendersoni** Malloch, 1923, Ann. Mag. Nat. Hist. 12 (9) :184.

Henderson Island and Samoa. First recorded in Hawaii by Hardy (1952, "Proceedings" 14:346) from Oahu. This species is distinguished from other *Atherigona* by having the apices of the wings smoky fumose.

**Graphomyia maculata** (Scopoli) 1763, Ent. Carn., 326.

Cosmopolitan. First reported in Hawaii by Joyce (1949, "Proceedings" 13:329) from Honolulu.

**Lispocephala kaalae** Williams, 1938, "Proceedings" 10:118-119.

Described from Mt. Kaala, Oahu.

**Musca sorbens** Wiedemann, 1830, Aussereurop. Zweifl. Ins. 2:418.

Tropics and subtropics of the world. First reported in Hawaii by Joyce (1949, "Proceedings" 14:3) from Oahu.

**Muscina stabulans** (Fallén), 1816, K. Vetenskap. Akad. Förh., 225 (*Musca*).

Cosmopolitan. First reported in Hawaii by Joyce (1949, "Proceedings" 13:333) from Oahu.

##### CORRECTIONS AND NOTES

**Musca vicina** Macquart.

Listed as a synonym of *domestica* by Bryan. Sabrosky, van Emden, *et al.* consider this to be a subspecies of *domestica*. Sabrosky says that, "some intermediate populations are difficult to name to subspecies," and it is perhaps better to continue to refer to our housefly as just *Musca domestica*. **Siphona irritans** (L.).

Change of combination for *Lyperosia irritans* (L.). (Decision of the Committee on Zoological Nomenclature at the U. S. National Museum.) Used in "Common Names of Insects Approved by the American Associa-

tion of Economic Entomologists" (Muesebeck, 1946, Jour. of Econ. Ent. 39[4]:432, 447, and 1950, l.c. 43[1]:122, 137).

**Ophyra aenescens** (Wiedemann).

Bryan stated that this species is probably not in Hawaii. Sabrosky (1949, "Proceedings" 13:427) confirms that it does occur here. This is probably the species which has been recorded in our literature as *O. nigra* (Wiedemann).

**Ophyra leucostoma** (Wiedemann).

Sabrosky (l.c.:428) says the records of this species in our literature (Grimshaw, 1901, Fauna Haw. 3[1]:30 and Howard, 1901, Proc. Ent. Soc. Wash. 4:490) were probably based upon misidentifications. If these records are correct the species does not appear to have become established in the Territory.

**O. nigra** (Wiedemann).

This species probably does not occur in Hawaii (Sabrosky, 1949, l.c.: 423). The records of it in our literature probably should refer to *aenescens*.

**Hylemya**.

Correction for *Hylemyia*, based upon opinion of C. W. Sabrosky (in correspondence).

**Hylemya cilicrura** (Rondani).

Recently appeared in the British literature under the combination *Chortophila cilicrura* (Rondani) (Miles, 1951, Bull. Ent. Res. 41[2]:343-354). I consulted Sabrosky concerning this usage and he replied as follows: "The use of *Chortophila* may be partly a matter of continuing old English usage, or it may be based on an article on possible generic groupings on the Anthomyiinae, by Collin (1927, Ent. Mo. Mag. 63:129-135). However, Collin's article was only suggestive, not definitive. As recently as February, 1951 (Ruwenzori Report), van Emden still uses *Hylemya* (as *myia*) *cilicrura*, and so does Hockett." Sabrosky recommends that we continue to use the combination *Hylemya cilicrura*.

## HIPPOBOSCIDAE

### ADDITIONAL RECORDS

**Olfersia aenescens** Thomson, 1868, Eugenes Resa, 2 Zool. (1) Insekter, 610.

Widely distributed over all tropical seas of the world. First recorded from the Territory by Bequaert (1941, Occ. Pap. B. P. Bishop Mus. 16[11]: 277), from Laysan and Lisiansky. Later recorded by Pemberton (1947, "Proceedings" 13:18) from Rabbit Island (off Oahu).

**Ornithoctona australasiae** (F.), 1805, Syst. Antliat., 337.

Pacific area and Japan. Bequaert reports, in correspondence, "this was not before recorded by me from Hawaii. I had referred doubtfully to *Ornithoeza metallica* (Schiner), the fly [in our literature] from Molokai called *Ornithomyia varipes* [Walker] by Speiser. This summer I saw this

specimen at the British Museum and discovered that it was an *Ornithotona*."

**Ornithoica vicina** (Walker), 1849, List Dipt. Brit. Mus. 4:1144. New World.

Dr. Bequaert reports, in correspondence, "This is the *Ornithoica* sp. recorded by Bryan (1921) and others. I have since seen additional specimens from Honolulu, off *Passer domesticus* and *Zosterops*."

#### CORRECTIONS AND NOTES

**Pseudolynchia canariensis** (Macquart), 1840, Hist. Nat. Canaries, Ent., 119.

Nearly cosmopolitan in tropical and temperate regions. Change of combination and name for *Lynchia maura* Bigot (Bequaert, 1938, Ent. News 49:42). *L. maura* Bigot, 1885, is a synonym of *P. canariensis* (Macquart), 1840.

**Lynchia nigra** (Perty), 1833, Del. Anim. Arctic per Brasiliam 3:190. New World.

Correct name for *Olfersia acarta* Speiser, as used in our literature, according to Bequaert.

**Ornithoica pusilla** (Schiner), 1868, Reise der Novara Zool. 2 (1) B, Dipt: 374.

Pacific area. The correct name for *Ornithoica confluenta* var. *peroneura* Speiser, according to Bequaert.

Dr. Bequaert has kindly given me, in correspondence, the following note: "Except for the two species of *Olfersia*, found on marine birds, it would seem that all the other species are introductions by man after white man arrived. This is certainly true of *M. ovinus* and *P. canariensis*, and almost certain for *O. vicina* and *O. pusilla*. As for *L. nigra* and *O. australasiae*, they are [too] far out of their usual range to be truly native."



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